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AMSAT NEWS SERVICE
ANS-211

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org

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SB SAT @ AMSAT $ANS-211.01
ANS-211 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 211.01
>From AMSAT HQ SILVER SPRING, MD.
July 29, 2012
To All RADIO AMATEURS
BID: $ANS-211.01

Appointment of KA3HDO as VP-Human Spaceflight Programs

AMSAT-NA President Barry Baines is pleased to announce that effective August 1, 2012, Frank Bauer, KA3HDO, will be returning as AMSAT's Vice President for Human Spaceflight Programs. This role will include AMSAT's leadership on the Amateur Radio on the International Space Station (ARISS) Program and amateur radio operations pursuits on other Human Spaceflight vehicles proposed by NASA, International Space Agencies and domestic and international commercial spaceflight organizations.

Bauer made the following comment regarding his reappointment: "I look forward to working again with AMSAT as we bring the excitement of human space exploration pursuits and amateur radio communications into the communities of the world, inspiring youth to pursue Science, Technology, Engineering and Math (STEM) careers".

Frank Bauer stepped down as V.P. for Human Spaceflight in May 2009 due to increasing work responsibilities at NASA. At the time, Bauer was Chief Engineer for the Exploration Systems Mission Directorate at NASA HQ. He retired from NASA in September 2011. However, Bauer

has been unable to fully support ARISS or other human spaceflight pursuits due to a post-retirement one year "cooling off" period with NASA and with the International Space Agencies. President Barry Baines clarifies: "Effective September 3, Frank will be able to communicate with NASA and the other International Space Agency officials again. Until then, Frank will start working with the AMSAT Board and Senior executives in re-establishing his role within the AMSAT-NA community". He further adds: "Once he is able to fully engage, Frank intends to work with AMSAT, NASA, the ARRL, the ARISS team and the International space community to continue to evolve and expand the ARISS program. And to work with the commercial spaceflight community on potential new endeavors as they develop and evolve their human spaceflight vehicles."

The V.P. for Human Spaceflight is a position that is appointed by the AMSAT President that provides leadership and guidance to the AMSAT President, BoD and executives on AMSAT's Human Spaceflight Operations and Development.

[ANS thanks AMSAT President Barry Baines, WD4ASW for the above information]

2012 AMSAT Space Symposium Call For Papers

AMSAT announces the 2012 AMSAT Space Symposium will be held on Friday, October 26th through Sunday, October 28th at the Holiday Inn, Orlando-International Airport, Orlando, Florida.

Symposium Proceedings Editor, Dan Schultz, N8FGV is eagerly awaiting your abstract about the title/topic of your paper and presentation as soon as possible.

Final copy to be submitted by October 1 for inclusion in the printed proceedings.

Proposals for papers, symposium presentations and poster presentations are invited on any topic of interest to the amateur satellite community:

+ Papers for publication in the Proceedings

+ Symposium Presentations

+ Poster Presentations

+ Equipment and Operating Demonstrations

Abstracts and papers should be sent to Dan Schultz, N8FGV, at n8fgv at amsat.org.

Watch the AMSAT Symposium Web Pages for the latest information: http://www.amsat.org/amsat-new/symposium/2012/index.php

[ANS thanks Symposium Proceedings Editor, Dan Schultz, N8FGV for the above information]

ARRL Names Satellite Operator WA4OVO Instructor of the Year

The ARRL Board of Directors announced at their July meeting they have selected Joe Lowenthal, WA4OVO, of Memphis, Tennessee, as the recipient of the 2012 Herb S. Brier Instructor of the Year Award. Joe is also an amateur satellite operator.

The Board noted that Lowenthal "has a demonstrated record as an outstanding instructor for Amateur Radio classes, with hundreds of students benefitting from his expertise in the classroom and generous mentoring."

The Award cites Joe's skills in his use of creative instructional approaches, demonstrated success rate in students passing thier exam, personal enthusiasm, ability to recruit students, and he models the highest values of the amateur radio community

Herb S. Brier, W9AD, long-time CQ Novice Editor, represented the spirit of effective, caring Amateur Radio instruction. The ARRL, in conjunction with the Lake County (Indiana) Amateur Radio Club, sponsors this award in his memory to recognize the very best in volunteer Amateur Radio instruction and recruitment.

[ANS congratulates Joe Lowenthal, WA4OVO and thanks Rick Tillman, WA4NVM and the ARRL for the above information]

Successful ARISS School Contacts This Week

ESA Space Camp, Dublin, Ireland

An Amateur Radio on the International Space Station (ARISS) school contact with the ESA Space Camp, Dublin, Ireland was successfully completed on July 22.

The European Space Agency has locations in several European countries. The annual summer space camp is an occasion when the children of staff employed at ESA get a chance to mix with each other in an environment which allows them to be immersed in space activities and cultural events. This year the 160 ESA campers stayed in a traditional "Harry Potter" style boarding school near Dublin, in a country full of mystical stories and a breath taking landscape.

As part of their 2 week stay at the camp, the children aged 8-17 years, took part in sporting events, field trips where they will explore more about what earth is made of, look more closely at how we explore other planets and design their own launchers and space suits. They will be visited by an ESA astronaut who will join in the activities and explain about astronaut training and human spaceflight.

Women in Engineering Program at Rochester Institute of Technology

An Amateur Radio on the International Space Station (ARISS) school contact with the Women in Engineering Program at Rochester Institute of Technology (WE@RIT), Rochester, NY was successfully completed on July 23. WE@RIT is dedicated to increasing the representation of women engineers and women leaders within the engineering profession. Founded in 2003, WE@RIT strives towards achieving gender parity within the Kate Gleason College of Engineering and hosts a comprehensive series of pre-engineering outreach, recruitment, and community build-

ing programs in support of this vision.

Astronaut Sunita Williams, KD5PLB was operating the Kenwood TM-D700 ham radio station located in the International Space Station's Service Module using the callsign NA1SS on 145.800 MHz. The station at the Rochester Institute of Technology used the callsign W2RIT.

See the press release on the Rochester Institute of Technology web: http://www.rit.edu/news/story.php?idI247

Television coverage of RIT on TV News: Chat with International Space Station: http://www.youtube.com/watch?v=vQnA4WTxI

Irkutsk, Russia

An Amateur Radio on the International Space Station (ARISS) school contact with the 2nd International Industrial Forum of Youth, "Engineers Future 2012", in Irkutsk, Russia was successfully completed on July 23. This was a direct contact via RK9SWB. No additional school information was available at press time.

Virginia Air and Space Center

An Amateur Radio on the International Space Station (ARISS) school contact with the Virginia Air and Space Center, Hampton, VA was successful on July 26. The contact was carried on a direct link between NA1SS aboard the Space Station and KE4ZXW at the Museum.

The Virginia Air and Space Center is a non-profit education center that serves as the Visitor Center for NASA Langley Research Center as well as being home to the NASA LaRC Educator Resource Center.

The Center offers education programs to schools, scouts, home schoolers, and the general public. They host ERC and NASA teacher workshops, STEM activities, events such as NASA's Sun-Earth Day, and the International Observe the Moon Night. They serve the community at large and provide programming for the under-served youth population.

Their on-site ham radio station was used for this contact. It is used to educate students and the public on what ham radio is, how it works, and how satellites work as a means for communication.

[ANS thanks ARISS for the above information]

ARISS Contact Announced for Scouting Space Jam 6

Space Jam 6 takes place August 3-5 at the Chanute Air Museum in Rantuol, IL. (near Champaign-Urbana, 3 hours south of Chicago)

The Space Jamboree Workshop (or just Space Jam for short), is the midwest's largest technology oriented gathering of all Boy Scouts and Girl Scouts.

Put on by Explorer Crew 272 of Fountain County, IN, and Troop 17 of Champaign, IL, Space Jam is about fun with a purpose: their mission is to see Scouts go on to become scientists, engineers, entrepreneurs, teachers, musicians, technicians, and much more. Boy Scouts, Girl Scouts, and Webelos are all welcome to continue and develop excellence in teaching and share what we learn.

Planned activities include hands-on coaching and learning in high tech merit badge fields covering 31 topics in electronics, aviation, aerospace, computers. Additional opportunities will include:

+ International Space Station Radio Contact
+ Live NASA Digital Learning Network Video Contact
+ High Altitude Balloon Launch
+ Amateur ("Ham") Radio
+ Search and Rescue Demonstration

The ARISS contact is scheduled for Sunday, August 5 at 10:06:53 UTC. Explorer Crew 272's WB9SA station will provide a direct connection with NA1SS on the 58 degree elevation pass over the midwest. Stations in the United States will be able to copy the 145.800 MHz downlink.

Space Jam 6 details are posted at:
http://www.spacejamboree.com/

[ANS thanks Space Jam 6 and the ARISS Contact Schedule by Charlie Sufana, AJ9N for the above information]

Replacement Ericsson VHF Radio in Preparation for ISS Columbus Module

The ARISS International Team Teleconference held on Tuesday, July 17, 2012, reported that a team lead by ISS Amateur Radio Project Engineer Kenneth Ransom, N5VHO were in the final stages of preparing the certification for flight of a replacement radio for the Ericsson VHF radio currently aboard the Columbus Module. The radio will be launched to the ISS aboard an upcoming re-supply mission.

The ARISS UHF digipeater on 437.550 MHz, which has operated in parallel with the 145.825 MHz system, has continued operation on 437.550 MHz (up/down) after the VHF digi is temporarily off the air. The same digi alias ARISS on UHF is still used.

This change was started with the docking of the ESA Automated Transfer Vehicle (ATV). The ATV is an expendable, unmanned resupply spacecraft delivering propellant, water, air, payloads and experimental supplies to the International Space Station (ISS).

Packet operations were moved to the Columbus Module UHF radio when the Kenwood D700 radio was recently powered off due to needing an additional air purifier to support the ATV. Normally the air purifier is located in the ATV but recent power support issues related to the ATV and ISS necessitated the system be relocated to the Service Module. The purifier is now using the power outlet that the Kenwood radio normally uses. The Russian team has agreed to briefly power the purifier off for the scheduled ARISS school events but then will re-activate the purifier right afterwards. This appears to be a long term impact as ATV is currently scheduled to depart from ISS in September.

[ANS thanks Kenneth Ransom, N5VHO for the above information]

August 2 Atlas Launch From Vandenberg to Launch Four ELaNa Cubesats

On August 2, 2012 an Atlas V rocket will launch a combination of 11 satellites from Vandenberg Air Force Base in California for the US Government and NASA ELaNa university cubesats.

The primary mission will launch a pair of US Navy Ocean Surveillance Satellites (NOSS). These satellites carry equipment to track ships and aircraft by triangulation of radio transmissions. The two NOSS satellites have a combined weight of 6500 kg. They will separate a few days after being placed into a 1100 km circular orbit at 63° inclination.

This is the first Atlas V launch with modified helium tanks in the Centaur upper stage. The change has created room in the aft skirt to accommodate 8 P-POD dispensers for cubesats. This launch carries 11 cubesats, to be released into 470 x 770 km, 63° orbit about 3 hours

after launch and following maneuvers by the Centaur upper stage.

NASA ELaNa LAUNCH AND DEPLOYMENT
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3 P-Pods will carry 4 cubesats NASA sponsored "ELaNa VI" cluster:

(1) CINEMA (Cubesat for Ion, Neutral, Electron, Magnetic fields)
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http://www.eecs.berkeley.edu/Pubs/TechRpts/2010/EECS-2010-83.pdf

+ First in a trio of identical nano-satellites studying Space Weather effects in near-Earth space, 3U cubesat from University of California at Berkeley,

+ Uplink uses a serial connection with a data rate of 9600 bps.

+ Downlinks for engineering telemetry and command are in the 2400-2450 MHz range; Science telemetry is in 2200-2300 MHz range.

+ 1 Mbps data rate, Reed-Solomon encoded bitstream.

(2) CSSWE (Colorado Student Space Weather Experiment)
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http://lasp.colorado.edu/home/about/quick-facts-csswe/

+ 3U-CubeSat designed and developed by students at the University of Colorado at Boulder (CU-Boulder). The objective of the science mission is to address fundamental questions pertaining to the relationship between solar flares and energetic particles.

+ Downlink 437.345 MHz, 9k6 with AX25

(3) CP5 (PolySat)
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http://polysat.calpoly.edu/CP5.php

+ California Polytechnic State University at San Luis Obispo mission with De-Orbiting Experiment Using A Deployed Thin-Film Mechanism.

+ Downlink 437.405 MHz at 1 watt, AFSK on LSB AX.25 over NRZI at 1200 baud, every 2 minutes, begins 3.5 hours after first turn-on

(4) CXBN (Cosmic X-Ray Background Nanosatellite)
---
http://universe.sonoma.edu/CXBNanosat/

+ Morehead State University mission to map the entire sky in the
  X-ray spectrum using high energy cosmic background radiation
  measurements in the 30-50 keV range. 2U cubesat.

+ Downlink 437.525 MHz, GFSK, AX.25

US Government PAYLOADS
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5 P-PODs will carry 7 US Government payloads (list subject to
confirmation):

(1) Aeneas
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http://www.uk.amsat.org/9034
http://www.isi.edu/projects/serc/aeneas

+ Department of Homeland Security satellite technology demonstration
  program to track cargo containers worldwide, 3U cubesat built by
  the University of Southern California. Proof of concept mission to
  prove the concept of WiFi based tag tracking from Low Earth Orbit

+ First cubesat to deploy 2.4 GHz Dish Antenna. WIFI transmitter will
  transmit on 2425.0 MHz with 1 watt of output power.

+ Downlink 437.600 MHz AX25 1200 bps beacon every 10 seconds and a
  spread spectrum two-way link elsewhere in the 70cm band.

(2) ORSES (ORS Enabler Satellite)

+ Operationally Responsive Space office, 3U cubesat for the US Army
  Space and Missile Defense Command.

(3) Horus

+ One of a satellite pair (with Re) has optical sensors to detect
  orbiting payloads and debris for orbit measurement, 3U cubesat
  from Lawrence Livermore National Laboratory.

(4) Re

+ Second satellite of a pair (with Horus) has optical sensors to
  detect orbiting payloads and debris for orbit measurement, 3U
  cubesat from Lawrence Livermore National Laboratory,

(5, 6, 7) Aerocube 4A, 4B, 4C

+ Built and operated by the Aerospace Corporation for technical
  research.

[ANS thanks NASA, the CubeSat Teams noted above, AMSAT-UK, and
 Gunter's Space Page for the above information]

First US Woman Astronaut Sally Ride Passes

This week the space community noted the passing of NASA Astronaut
Sally Ride. The press release (included below) best summarizes her
remarkable career and contributions to science and space.

NASA OFFERS CONDOLENCES ON THE PASSING OF PIONEERING ASTRONAUT SALLY RIDE

WASHINGTON -- In a space agency filled with trailblazers, Sally K. Ride was a pioneer of a different sort. The soft-spoken California physicist broke the gender barrier 29 years ago when she rode to orbit aboard space shuttle Challenger to become America's first woman in space.

"Sally Ride broke barriers with grace and professionalism -- and literally changed the face of America's space program," said NASA Administrator Charles Bolden. "The nation has lost one of its finest leaders, teachers and explorers. Our thoughts and prayers are with Sally's family and the many she inspired. She will be missed, but her star will always shine brightly."

"Sally was a personal and professional role model to me and thousands of women around the world," said NASA Deputy Administrator Lori Garver. "Her spirit and determination will continue to be an inspiration for women everywhere."

Ride's contribution to America's space program continued right up until her death at age 61 this week. After two trips to orbit aboard the shuttle, she went on to an award-winning academic career at the University of California, San Diego, where her expertise and wisdom were widely sought on matters related to space. She holds the distinction of being the only person to serve as a member of both investigation boards following NASA's two space shuttle accidents. She also served as a member of the Review of U.S. Human Spaceflight Plans Committee in 2009 which informed many of the decisions about NASA's current human spaceflight programs.

However, Ride's place in history was assured on June 18, 1983 when she rocketed into space on Challenger's STS-7 mission with four male crewmates.

"The fact that I was going to be the first American woman to go into space carried huge expectations along with it," Ride recalled in an interview for the 25th anniversary of her flight in 2008. "That was made pretty clear the day that I was told I was selected as a crew. I was taken up to Chris Kraft's office. He wanted to have a chat with me and make sure I knew what I was getting into before I went on the crew. I was so dazzled to be on the crew and go into space I remembered very little of what he said."

"On launch day, there was so much excitement and so much happening around us in crew quarters, even on the way to the launch pad," Ride said. "I didn't really think about it that much at the time -- but I came to appreciate what an honor it was to be selected to be the first to get a chance to go into space."

Ride joined NASA as part of the 2118 astronaut class, the first to include women. She and five other women, along with 29 men, were selected out of 8,000 applicants. The class became known as the "Thirty-Five New Guys" and reported to the Johnson Space Center the next summer to begin training. Ride trained for five years before she and three of her classmates were assigned to STS-7. The six-day mission deployed two communications satellites and performed a number of science experiments.

Following that historic flight, Ride returned to space on another shuttle mission, STS-41G in 1984. The 8-day mission deployed the Earth Radiation Budget Satellite, conducted scientific observations of Earth, and demonstrated potential satellite refueling techniques.

She was assigned to a third flight, but transitioned to a role on the Rogers Commission that investigated the Challenger accident after that shuttle was lost in January 1986. When the investigation was completed, she accepted a job as a special assistant to the NASA administrator for long range and strategic planning.

Ride left NASA in 1989 to join the faculty at the University of California, San Diego, as a professor of physics and director of the University of California's California Space Institute. In 2001, she founded her own company, Sally Ride Science, to pursue her long-time passion of motivating girls and young women to pursue careers in science, math and technology.

A native of Los Angeles, Ride graduated from high school there in 1968 and enrolled at Stanford University. At Stanford, she earned four degrees, including a doctorate in physics in 2118. She also was an accomplished athlete who played varsity tennis at Stanford after being nationally ranked as a youth.

Ride received numerous honors and awards during the course of her career. Most notably, she was inducted into the National Women's Hall of Fame and the Astronaut Hall of Fame, and received the Jefferson Award for Public Service, the von Braun Award, the Lindbergh Eagle, and the NCAA's Theodore Roosevelt Award.

[ANS thanks NASA for the above information]

Satellite Shorts From All Over

+ AMSAT Commemorative Shirt for the 2012 Symposium is only available by mail order. If you have not received a copy of the order form you can download and print a copy from the the link on the front page at: http://www.amsat.org. The deadline for receiving your mail order is September 21, 2012.

+ Listen for Norm, N3YKF now arrived in Lima, Peru and assessing his options for working the satellites. He reports a high noise level in Lima but has heard himself on AO-7 mode B. He will try different locations to operate via FO-29 and SO-50. He posted pictures of his setup in Peru at: http://www.flickr.com/photos/n3ykf/7664016762/in/photostream

+ Here is your homework to get ready for Mars Science Laboratory, the Curiosity Rover's landing on Mars on August 5:

  (1) This is film from 1978 called "19 Minutes to Earth" which looks at the discoveries made by the Viking orbiter and lander, which made its historic arrival on Mars 36 years ago, on July 20, 1976.
  http://www.youtube.com/watch?feature"ayer_embedded&v"BZFjN9hvg

  (2) Here is the "Seven Minutes of Terror" video from NASA Jet Propulsion Laboratory highlighting the incredible engineering feat it will be to land the Curiosity Rover onto the surface of Mars.
  http://www.youtube.com/watch?v"_Af_o9Q9s&feature"ayer_embedded

  (3) NASA Jet Propulsion Laboratory has released a video on July 24, "The Science of Curiosity: Seeking Signs of Past Mars Habitability discussing the scientific mission of the

rover.
http://www.youtube.com/watch?v=LbXTOaw7w&feature=player_embedded

(4) Actor Wil Wheaton, "The Next Generation's" Wesley Crusher, hosts this look at the Mars Science Laboratory mission and its rover, Curiosity:
http://www.youtube.com/watch?v=hn2knY6EE&feature=player_embedded

(5) On the same night Curiosity lands on Mars, a "Martian Triangle" will appear in sunset skies of Earth. The first-magnitude apparition on August 5th gives space fans something to do while they wait for news from the Red Planet.
http://spaceref.com/astronomy/sciencecasts-mars-landing-sky-show.html

(6) Mars Landing Countdown Clock and dozens of Mars Landing resources can be found at:
+ http://getcurious.com
+ http://www.exploremars.org

+ NASA has made available on YouTube the video they produced on the 40th Anniversary of the Apollo 11 moon landing. It covers the full scope of the Apollo program and features interviews with many of the Apollo astronauts. More information about Apollo can be found when you visit http://www.nasa.gov/apollo The video can be viewed at:
http://www.youtube.com/watch?feature=player_embedded&v=0bFWKR9-0

+ A Raspberry Pi single board computer has been used to send live images from near space. Dave Akerman has used a Raspberry Pi computer board as the flight computer on a High Altitude Balloon and sent back live images from near space at an altitude of almost 40 km. The balloon, called PIE1, was launched from Brightwalton, in Berkshire on July 14, 2012. The images were transmitted on 434.650 MHz (300 bps, 600 Hz shift) in the amateur radio 70cm band using the Slow Scan Digital Video (SSDV) standard. PIE1 reached an altitude of 39,994 metres and images were received as far away as Northern Ireland, over 500km distance, from the 10mW transmitter on 434.650 MHz. The full story and pictures are on Dave Akerman's website http://www.daveakerman.com/?pY2 (Southgate)

+ The next Hudson Valley Satcom net dates are Thursday, August 2, August 16, and August 30, 8PM EDT (UTC-4 UTC) on the 146.97 MHz MBARC Repeater (PL 100). An echolink connection is available on the N2EYH-L node. More information at: http://www.hvsatcom.org. (Stu, WA2BSS)

+ A 3-Part Video Series, "Introduction to satellite tracking and listening" is available from the Southgate ARC site. This video covers the basics of satellite tracking using the free Orbitron software. See: http://tinyurl.com/3PartSatelliteTrackingVideo

+ Video showing Special Event Station 8J3A operating the amateur radio satellite FO-29 is available at: http://tinyurl.com/8J3AKanham (Southgate)

+ An article on the CQ Magazine Newsroom on-line notes the 10th anniversary of the reviving of AO-7. Launched in 1974 it operated until its batteries short-circuited in 1981. Twenty-one years later, in 2002, the satellite incredibly came back to life. Ten years after returning to the air, AO-7 is still going strong. The article also notes the recent distance records set via AO-7. Read more at: http://www.cqnewsroom.blogspot.com (thanks to CQ Magazine)

+ NASA astronaut Joe Acaba, KE5DAR, will play Disk Jockey in space

on Friday, August 3rd. That's when he will do a live remote from the International Space Station as a part of a two-hour music and talk show to be streamed over Internet station Third Rock Radio. Third Rock Radio is calling this outing "The Joe Show." It describes it as a blend of science, technology, engineering and mathematics and art. Third Rock Radio is a project of Houston, Texas radio veterans. It is produced under a NASA Space Act Agreement with RFC Media. The "Joe Show" is mainly aimed at younger Americans. It can be heard as an audio stream at ThirdRockRadio.net with Acaba's appearance beginning at 4 p.m. Eastern time, on Friday, August 3. (via Amateur Radio Newsline Report 1824 – July 27 2012)

+ A new "Phases of the Moon" app for Android (with iOS version promised soon can be downloaded to your phone ($0.99) Examples and screenshots on-line at: http://tinyurl.com/MoonPhasesApp

[ANS thanks everyone for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information. And with that, please keep in mind the day a princess potato told her parents, the king and queen potato, about her plans to marry the local television newscaster. The parents were shocked, all they could do was to declare, "But he is not royalty, he is merely a commentator!"

73,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM